

REMARKS/ARGUMENTS

Summary

Claims 1 and 6-15 are pending. Claims 2-5 have been canceled. Claims 1 and 6-15 have been amended.

The Office Action objects to the specification due to informalities. Claims 12 and 13 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-3, 9-12, 14, and 15 are rejected under 35 U.S.C. §102(b) as being anticipated by Koch U.S. Patent 6,178,608 ("Koch"). Claims 4 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Koch in view of Heidelberg U.S. Patent 4,491,769 ("Heidelberg"). Claims 6 and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over Koch in view of Beaman U.S. Patent 4,866,630 ("Beaman"). The Office Action objects to claims 8 and 13 as being dependent upon a rejected base claim, but indicates that the claims would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims.

Applicant has amended claim 1 to further set forth features of the invention previously pending in claims 2-5. Accordingly, claims 2-5 have been canceled. Applicant has amended claim 12 to further clarify the claimed invention. Applicant has also amended the claims to remove the numerical indices and substitute the routinely used "wherein" for the less common "characterized in that". No new matter has been added. The Examiner's objection and rejections are addressed below in turn.

The Objection to the Specification

The Office Action objected to the specification due to informalities, in particular, because the specification does not include section headings.

Applicant has amended the specification to generally conform it to the format for U.S. patent applications and has accordingly added section headings. A Substitute Specification

and Comparison Copy are submitted herewith. Accordingly, the objection to the specification is obviated.

The Rejection under §112, Second Paragraph

The Office Action rejects claims 12 and 13 under 35 U.S.C. §112, second paragraph, as being indefinite because it is unclear in claim 12 whether the features following the phrase "in particular" are part of the claimed invention. Claim 13 is rejected as depending from rejected claim 12.

Applicant has amended claim 12 to remove the "in particular" language objected to in the Office Action. Accordingly, the rejection under §112, second paragraph, is obviated.

The Prior Art Rejections

The Office Action rejects claims 1-3, 9-12, 14, and 15 under 35 U.S.C. §102(b) as being anticipated by Koch. Claims 4 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Koch in view of Heidelberg. Claims 2-5 have been canceled. However, as the features of claims 2-5 have been incorporated into independent claim 1, these rejections will be addressed in view of claim 1.

Applicant's independent claim 1 is directed to a rotary indexing table that includes a stationary base unit and a plate that is rotatably supported on the base unit. The plate is drivable relative to the base unit by means of a drive that is formed by a plurality of individual drive elements arranged in the circumferential region of the plate. The individual drive elements include individual permanent magnets that are uniformly distributed adjacent to one another along the total circumference of the plate and substantially diametrically opposite one another with respect to the axis of rotation of the plate. The base unit has at least four electromagnets which lie opposite the permanent magnets coupled to the plate.

Accordingly, applicant's novel approach advantageously provides for the use of a plurality of individual electromagnets to power a rotary indexing table. As each electromagnet only contributes a share of the driving force, less powerful and therefore less expensive (i.e.,

commercially available) electromagnets may be used. Even in sum, the plurality of electromagnets are usually much more cost-favorable than brushless ring torque motors, which require large hand-coiled stators for use in a rotary indexing table. Moreover, the use of a plurality of electromagnets allows for easy scaling of the drive mechanism for indexing tables of different sizes or diameters, and also reduces the concentration of heat development so that air cooling is sufficient.

The Office Action acknowledges that Koch alone does not disclose a plate with a carriage ring provided with individual permanent magnets along its total circumference and, in addition, a plurality of electromagnets which lie opposite the permanent magnets, as now recited in independent claim 1 (Office Action, p. 6, lines 2-4). In particular, Koch fails to disclose “individual drive elements arranged in the circumferential region of the plate . . . comprising individual permanent magnets that are uniformly distributed adjacent to one another along the total circumference of the plate” and “[a] base unit having at least four electromagnets which lie opposite the permanent magnets coupled to the plate”, as set forth by claim 1.

The Office Action contends, however, that Heidelberg can be combined with Koch and discloses what is missing in Koch to render obvious applicant’s claims. Applicant respectfully disagrees.

Koch refers to a rotary index table having an outer carriage ring that is driven to rotate about a central support frame by a pair of servo motors (Abstract). Heidelberg refers to a motor/generator having a first ring of permanent magnets that is rotatable about a second ring of switchable electromagnetic poles (Abstract).

Applicant submits that the Office Action has failed to establish a *prima facie* case of obviousness at least because the proposed modification of Koch would impermissibly change the principle of operation of that reference. In fact, the entire design of the Koch rotary index table, save the most basic features of the frame and carriage ring, must be abandoned in order to combine that reference with the disclosure of Heidelberg. The principle of operation of Koch, namely that the carriage ring is driven to rotate by discrete motors mounted on the frame, would

have to be abandoned in favor of a drastically different operating principle, whereby components of the index table must take on roles akin to the interior components of a traditional motor/generator. Such a drastic modification to the operating principle of a system is evidence that the references are insufficient to render obvious applicant's claims. *In re Ratti*, 270 F.2d 810 (CCPA 1959); MPEP 2143.02 (VI).

Independent of the foregoing, applicant further submits that the Office Action has also failed to provided a proper motivation or suggestion—whether from the references themselves, the knowledge of one of ordinary skill in the art, or the nature of the problem to be solved—to modify the Koch rotary index table with the design of a traditional motor/generator illustrated by Heidelberg. Particularly, the Office Action fails to identify any teaching from the references themselves that would suggest to one of ordinary skill in the art the desirability of combining the references in the manner claimed. That is, the Office Action is unable to identify any objective evidence of a teaching or suggestion in Koch to utilize any other design for its rotary drive means. Similarly, no suggestion is identified in Heidelberg that it would be desirable to adapt the Heidelberg motor/generator design for a rotary index table.

Given that the Office Action does not look to the references themselves for a motivation to combine, applicant further submits that the statements of motivation proffered in the Office Action are insufficient to establish such a motivation based on other permissible grounds. The Office Action states:

[I]t would have been obvious to one of ordinary skill in the art at the time of the invention to use the structure taught by Heidelberg within the teaching of Koch for the purpose/advantages of 1) [p]ermitting optimum utilization of the volume (space), 2) [r]educe the angular ranges of rotation, which do not contribute to the flux switching, 3) [t]he maintenance of the machine is rendered easier as it is possible to replace individual inexpensive switching means. (Office Action, page 6, lines 12-19)

Applicant submits, however, that these proffered statements are not the clear and particular statements required to establish a motivation to combine. *See, In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999). Rather, they are of the broad and conclusory variety deemed insufficient as evidence of a motivation to combine. *Id.* In particular, applicant notes that the

proffered statements merely list a series of allegedly desirable advantages without clearly and particularly describing how the achievement of the stated advantages necessarily results in a reason for one of skill in the art to select Heidelberg and Koch and combine them in the manner claimed by the applicant, or how such an alleged motivation arises from the general knowledge of the art or the nature of the problem to be solved. *See, e.g., In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1998) (the examiner must show reasons why the skilled artisan, without knowledge of the invention, would select the elements from the prior art and combine them in the manner claimed); *In re Kotzab*, 208 F.3d 1352 (Fed. Cir. 2000) (particular findings must be made as to the reason for combination); *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002) (Board cannot rely on conclusory statements but must set forth the rationale for combination). Without showing such an objective teaching leading to the proposed combination, the Office Action cannot satisfy the burden of obviousness. *E.g., In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999); *In re Fritch* 972 F.2d 1260 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Therefore, applicant submits that the Office Action has failed to provide a proper motivation or suggestion to combine Koch with Heidelberg. In the absence of such a motivation, any combination of references to achieve applicant's invention is an impermissible hindsight reconstruction guided by applicant's disclosure. *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999)(it is the essence of hindsight to combine references without evidence of a motivation to do so). It should be noted that the mere fact that references can be combined or that the combination is within the capabilities of one of ordinary skill in the art is not sufficient to establish a case of *prima facie* obviousness without a proper motivation to combine. MPEP 2143.01 (III, IV).

Therefore, applicant submits that independent claim 1 is patentable. Accordingly, claims 9-12, 14, and 15 are patentable at least because they depend from patentable claim 1. Claims 6 and 7, which are rejected under 35 U.S.C. §103(a) as being unpatentable over Koch in view of Beaman, are also patentable at least because they depend from patentable claim 1.

Application No. 10/769,552
Amendment
Reply to Office Action of May 30, 2006

PATENT

The Objection to Claims 8 and 13

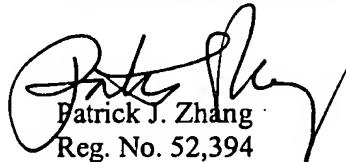
The Office Action objects to claims 8 and 13 as depending from rejected claim 1. As the foregoing demonstrates that claim 1 is patentable, the objection to claims 8 and 13 is obviated.

CONCLUSION

In view of the foregoing, applicant submits that this application is in condition for allowance, and a formal notification to that effect at an early date is requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (415) 273-8305 (direct dial).

Respectfully submitted,


Patrick J. Zhang
Reg. No. 52,394

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: (415) 576-0200
Fax: (415) 576-0300
P2Z:jhw
60852401 v1